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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/523,146	03/22/2005	Yoichi Kobayashi	20241/0202215-US0	3637
7278	7590	09/18/2006	EXAMINER	
DARBY & DARBY P.C.			ZUCKER, PAUL A	
P. O. BOX 5257			ART UNIT	
NEW YORK, NY 10150-5257			PAPER NUMBER	
			1621	

DATE MAILED: 09/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/523,146

Applicant(s)

KOBAYASHI ET AL.

Examiner

Paul A. Zucker

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 January 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 1/21/2005.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1, 3, 4, 6, 7 and 8 rejected under 35 U.S.C. 102(b) as being anticipated by Ponceblanc et al (WO 00/27809-A1 05-2000 English Equivalent: Ponceblanc et al (US 7-2003)). NOTE: Citations from 6,417,395 corresponding to the WO document will be indicated in **bold**. Ponceblanc discloses (Page 6, lines 7-23, **column 4, lines 14-34**) a process for the preparation of methionine from the amidase catalyzed hydrolysis of methionine amino amide. Ponceblanc discloses (Page 5, lines 14-19, **column 3, lines 53-59**) the use of ammonia concentration of between 2 and 25 moles per moles of substrate which encompasses the instantly claimed amounts of ammonia. Ponceblanc discloses (Page 6, lines 14-19, **column 4, lines 22-29**) the distillation, recovery and recycle of ammonia. Ponceblanc discloses (Page 6, lines 20-23, **column 4, lines 22-29**) the recovery by precipitation and filtration of methionine. Ponceblanc discloses (Page 6, lines 12-13, **column 4, lines 20-21**) the immobilization, for repeated use, of the biocatalyst. Ponceblanc therefore anticipates claims 1, 3, 4, 6, 7 and 8.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35

U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

2. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ponceblanc et al (WO 00/27809-A1 05-2000 English Equivalent: Ponceblanc et al (US 7-2003)) in view of Commeyras et al (US 3,940,316 02-1976). NOTE: Citations from 6,417,395 corresponding to the WO document will be indicated in **bold**.

Instantly claimed is a process for producing methionine which includes the step of a biocatalyzed hydrolysis of 2-amino-4-methylthiobutyronitrile to methionine.

Ponceblanc teaches (Page 6, lines 7-23, **column 4, lines 14-34**) a process for the preparation of methionine from the amidase catalyzed hydrolysis of methionine amino amide. Ponceblanc teaches (Page 5, lines 14-19, **column 3, lines 53-59**) the use of ammonia concentration of between 2 and 25 moles per moles of substrate which encompasses the instantly claimed amounts of ammonia. Ponceblanc

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teaches (Page 6, lines 14-19, **column 4, lines 22-29**) the distillation, recovery and recycle of ammonia. Ponceblanc teaches (Page 6, lines 20-23, **column 4, lines 22-29**) the recovery by precipitation and filtration of methionine. Ponceblanc teaches (Page 6, lines 12-13, **column 4, lines 20-21**) the immobilization, for repeated use, of the biocatalyst.

The primary difference between the process of Ponceblanc and that instantly claimed is that Ponceblanc teaches the sequential hydrolysis of 2-amino-4-methylthiobutyronitrile to the amide by chemical means while the direct enzymatic hydrolysis of 2-amino-4-methylthiobutyronitrile is instantly claimed.

Commeyras, however, teaches (Column 6, lines 44-64) the direct hydrolysis of 2-amino-4-methylthiobutyronitrile to methionine using an R 312 strain culture.

Methionine is precipitated from solution after reduction of the volume of the reaction solution.

Thus one of ordinary skill in the art would have been motivated to employ the biocatalyst of Commeyras in the process of Ponceblanc in order to produce a process which allows for the direct rather than stepwise hydrolysis of 2-amino-4-methylthiobutyronitrile and which is therefore more economical in view of the reduced number of operations required. There would have been a reasonable expectation for success since both processes are directed to the production of methionine employing a biocatalyst.

There remain small differences between the claimed process and that taught by Ponceblanc and Commeyras. Neither Ponceblanc nor Commeyras specify what the methionine concentration in the final solution obtained is. The examiner presumes, however, that a saturated solution is obtained in each case including the instant process. Similarly neither Ponceblanc and Commeyras specify what pressure is employed but since high concentrations of the gaseous reagent ammonia are employed by Ponceblanc at elevated temperatures, the Examiner presumes that elevated pressures are employed as well. The determination of the exact pressure to employ in optimization of the process is within the routine skill of the ordinary artisan.

Thus the instantly claimed process would have been obvious to one of ordinary skill in the art.

### **Conclusion**


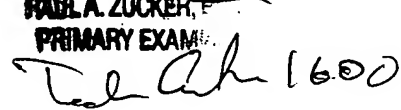
3. Claims 1-9 are pending. Claims 1-9 are rejected.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul A. Zucker whose telephone number is 571-272-0650. The examiner can normally be reached on Monday-Friday 5:30-2:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Johann R. Richter can be reached on 571-272-0646. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
PAULA A. ZUCKER, P  
PRIMARY EXAMINER  
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